

APPLICATION FOR CERTIFICATE OF AUTHORITY

FEB 23 1981

Pursuant to the provisions of Article 8.05 of the Texas Business Corporation Act, the undersigned corporation hereby applies for a certificate of authority to transact business in Texas:

1. The name of the corporation is WELLS FARGO CREDIT CORPORATION

2. If the name of the corporation does not contain the word "corporation," "company," "incorporated," or "limited" (or an abbreviation thereof), then the name of the corporation with the word or abbreviation thereit elects to add thereto for use in Texas is: (Or if the corporate name is not available in Texas, then specify the assumed name which the corporation elects to use in Texas and attach Assumed Name Certificate.)

3. It is incorporated under the laws of California

4. The date of its incorporation is February 17, 1978 and the period of its duration is perpetual. (State "Perpetual" or term of years).

5. The address of its principal office in the state or country under the laws of which it is incorporated is
700 S. Flower St., Suite 1010, Los Angeles, California 90017

6. The address of its proposed registered office in Texas is (a P. O. Box is not sufficient) Republic National Bank Building,
c/o C T CORPORATION SYSTEM, Dallas, Texas 75201

and the name of its proposed registered agent in Texas at such address is
C T CORPORATION SYSTEM

7. The purpose or purposes of the corporation which it proposes to pursue in the transaction of business in Texas are:

Consumer and commercial lending, auto and recreational vehicle leasing, purchase of retail installment contracts, all related lawful activities.

8. It is authorized to pursue such purpose or purposes in the state or country under the laws of which it is incorporated.

9. The names and respective addresses of its directors are:

NAME _____
SEE ATTACHED LIST

ADDRESS _____

(TEX. - 1816 - 9/30/75)

6 SEPTEMBER 1988

MEMORANDUM TO: ALL RMD'S AND ALL DISTRICT OFFICES -
PASS TO DEC CHAIRMEN PLEASE

INFO COPY:

T. FLEETWOOD MEFFORD, DAS FOR DOMESTIC OPERATIONS

FROM:

A.B. "BECK" KISSELBURGH, CHAIRMAN, SAN DIEGO DEC

SUBJECT:

DOC-OIG STUDY TO DETERMINE ALTERNATIVE METHODS OF
ACHIEVING THE MISSION OF THE US&FCS DOMESTIC FIELD
OPERATIONS

REFERENCES:

A) DASDO #88-026 DATED JULY 8, 1988.
B) STAFF REPORT OF THE SUBCOMMITTEE ON INTERNATIONAL
OPERATIONS TITLED "OVERSIGHT OF THE US&FCS" DATED
6/19/88.

A. SAN DIEGO WAS VISITED IN EARLY AUGUST BY THIS TEAM AND THE COLLECTIVE ASSESSMENT OF THOSE "INTERVIEWED" IS A CONTINUING DEEP CONCERN OVER THE DISTINCT POSSIBILITIES THAT INSTEAD OF DETERMINING WAYS TO INCREASE DOMESTIC OFFICE ASSETS AND CAPABILITIES AN ITA/DOC POSITION MAY WELL EVOLVE OF INTERGRATING MORE FUNCTIONS WITH STATE OFFICES OR WITH OTHER ORGANIZATIONS UP TO AND INCLUDING PHASING OUT CERTAIN DISTRICT OFFICES.

IT IS OUR PERCEPTION THAT THE TEAM RECOMMENDATION TO THE SECRETARY DUE BY SEPTEMBER 15, 1988 MAY WELL BE HEADING THAT WAY.

THE SAN DIEGO DEC HAS SENT A LETTER TO THE SECRETARY STRONGLY URGING THAT THE INTERNATIONAL TRADE ADMINISTRATION DISTRICT OFFICES BE STRENGTHENED, NOT DILUTED OR ABOLISHED.

WE SURELY TRUST THAT ALL DECS WILL IMMEDIATELY COMMUNICATE THEIR POSITION TO THE SECRETARY TO LEND HIM SUPPORT IN HIS DECISION MAKING. BE AWARE, TIME IS OF THE ESSENCE.

B. CONGRESSMAN DANIEL A. MICA'S SUBCOMMITTEE ON INTERNATIONAL OPERATIONS HAS COMPLETED THEIR STAFF REPORT TITLED "OVERSIGHT OF THE US&FCS" DATED 6/19/88. THIS REPORT HITS THE "NAIL-ON-THE-HEAD". IF YOU NEED A COPY CONTACT THE SAN DIEGO DISTRICT OFFICE AT FTS 895-5395, COMMERCIAL 619-557-5395.

12 SEPTEMBER 1988

MEMORANDUM TO: ALL RMD'S AND ALL DISTRICT OFFICES -
PASS TO DEC CHAIRMEN PLEASE

INFO COPY: T. FLEETWOOD MEFFORD, DAS FOR DOMESTIC OPERATIONS

FROM: RICHARD A. POWELL, DISTRICT DIRECTOR/
SAN DIEGO DEC EXECUTIVE SECRETARY

SUBJECT: DOC-OIG STUDY TO DETERMINE ALTERNATIVE METHODS OF
ACHIEVING THE MISSION OF THE US&FCS DOMESTIC FIELD
OPERATIONS

REFERENCES:

- A) DASDO #88-026 DATED JULY 8, 1988
- B) STAFF REPORT OF THE SUBCOMMITTEE ON INTERNATIONAL
OPERATIONS TITLED, "OVERSIGHT OF THE US&FCS",
DATED 6/19/88
- C) SAN DIEGO DEC CHAIRMAN "BECK" KISSEL,BURGH WOMAIL
#88-010

THERE SEEKS TO BE A PERCEPTION FROM SOME RECIPIENTS OF REFERENCE (C)
THAT SAN DIEGO DEC'S LETTER TO THE SECRETARY IS NEGATIVE OR
CRITICAL. THAT CERTAINLY WAS NOT THE INTENT. THE SAN DIEGO DEC
STRONGLY SUPPORTS THE SECRETARY AND HIS EFFORTS TO ENHANCE DOC'S
EXPORT PROMOTION PROGRAMS.

THE SAN DIEGO DEC'S LETTER TO THE SECRETARY (SENT IN THEIR ADVISORY
CAPACITY TO THE SECRETARY'S OFFICE) FOLLOWS IN ITS ENTIRETY:
QUOTE.

7 SEPTEMBER 1988

THE HONORABLE C. WILLIAM VERITY
SECRETARY OF COMMERCE
U.S. DEPARTMENT OF COMMERCE
WASHINGTON, D.C. 20230

DEAR MR. SECRETARY:

IN OUR ADVISORY CAPACITY TO YOUR OFFICE WE WISH TO EXPRESS OUR
CONTINUING CONCERN OVER THE POSSIBILITIES THAT THE CURRENT STUDY OF
ALTERNATIVES TO ACHIEVING THE US&FCS DOMESTIC MISSION MAY LEAD TO
FURTHER DILUTION OF THE DOMESTIC SYSTEM. IT IS OUR FEELING THAT THE
DOMESTIC SYSTEM SHOULD BE STRENGTHENED, NOT DILUTED, TO MEET THE
GREATER DEMAND OF THE INTERNATIONAL TRADING COMMUNITY, PARTICULARLY
AT THIS TIME WHEN EXPORT OPPORTUNITIES ARE AT A PEAK.

OUR SAN DIEGO DISTRICT OFFICE WAS ONE VISITED BY THE ITA-OIG TEAMS
AND IT IS THE PERCEPTION OF THOSE INTERVIEWED THAT THE ITA/DOC

POSITION COULD EVOLVE INTO INTEGRATING MORE FUNCTIONS INTO OTHER STATE OR PRIVATE ORGANIZATIONS. AS EXPRESSED PREVIOUSLY WE SHOULD BE DETERMINING WAYS TO INCREASE THE DOMESTIC OFFICE ASSETS AND CAPABILITIES WHERE THE PRIME OBJECTIVE IS SOLELY INTERNATIONAL AND NOT WAYS TO CUT BACK OR TRANSFER RESPONSIBILITIES TO OTHERS.

MR. SECRETARY, WE BELIEVE THAT DANIEL A. MICA'S STAFF REPORT OF THE SUBCOMMITTEE ON INTERNATIONAL OPERATIONS, COMMITTEE ON FOREIGN AFFAIRS - OVERSIGHT OF THE U.S. AND FOREIGN COMMERCIAL SERVICE - JUNE 19, 1988 "HITS THE NAIL ON THE HEAD" AND SHOULD BE REVIEWED FOR ITS RECOMMENDED ACTION. MY PREDECESSOR SAM ARN WAS PRIVILEGED TO TESTIFY BEFORE THIS SUBCOMMITTEE.

WE WOULD LIKE TO HELP FURTHER THIS EFFORT. YOU MOST ASSUREDLY HAVE OUR SUPPORT.

VERY TRULY YOURS,

A.B. "BECK" KISSELBURGH,
CHAIRMAN, SAN DIEGO DISTRICT EXPORT COUNCIL

END QUOTE.

my best

① Hold a call shown to my local telephone operator - The King and Dunn - 00716
212-461-5951 This would send your voice to the telephone company for us to listen in

of
the
same

① *Today* is the first day of our vacation. We will be staying at the beach for the next few days. The weather is supposed to be nice, so we plan to go swimming and sunbathing. In the evenings, we will have dinner at a local restaurant and then walk along the boardwalk. I am looking forward to relaxing and getting away from work.

73 / 211

114 when you get there you will have the first few days to get used to the new place. This will be good for you and will help you to feel at home. The last few days will be for you to get used to the new place. This will be good for you and will help you to feel at home.

- ② Review notes re Bus received
and delivery schedule
- ③ General discussion where FLORIDA HOTEL - REVENUE
Lahore BOSTON 1/21/1985 MARKETING
between business day pm
Advisi consultation by phone - can discuss anything.
Can I question re classification of US office?
Do we have written assurance of US office?

→ ④ Is there list Business will handle of numbers
given to have copy {

⑤ Customer do we start and use list priorities
⑥ Call ED and talk directly REC Shells. Priorities
Determine funding
⑦ AH program
EUC P
managers?

Print out funds?
⑧ U2J - Profit of funds and EUC for Joseph
⑨ Any interest small & big? purchases? Contact working
⑩ MCAZ - ED?
⑪ ED interests - any further interest? - NO
⑫ SICL Pege 1.
⑬ Sulphur Purchase want 100 K/m³ bags to Parawar 138
⑭ Private for ED.

WICKERIT - GENERAL IBRAHIM BIBANGIDA
Oct 1985 Corp.

GALAXY TRADE
U.S. PURCHASE CENTER TRAN N.Y.C
0090 89925 ANN DAVID FAITH
PHONE 820 - 6849
1st on deposit for purchase

dark green length of short hand agi 10' long - 115 "

1140 10pm min. min.

100 dimension

1/2 hour - contact

1. ~~Establishment~~ ~~of~~ ~~new~~ ~~units~~ ~~and~~ ~~processes~~
~~for~~ ~~logistics~~ ~~and~~ ~~procurement~~
~~of~~ ~~medical~~ ~~supplies~~ ~~and~~ ~~other~~ ~~logistics~~

2. ~~Procurement~~ ~~of~~ ~~medical~~ ~~supplies~~ ~~and~~ ~~other~~ ~~logistics~~
~~from~~ ~~local~~ ~~suppliers~~ ~~and~~ ~~international~~ ~~suppliers~~

3. ~~Establishment~~ ~~of~~ ~~new~~ ~~units~~ ~~and~~ ~~processes~~
~~for~~ ~~logistics~~ ~~and~~ ~~procurement~~
~~of~~ ~~medical~~ ~~supplies~~ ~~and~~ ~~other~~ ~~logistics~~

4. ~~Procurement~~ ~~of~~ ~~medical~~ ~~supplies~~ ~~and~~ ~~other~~ ~~logistics~~
~~from~~ ~~local~~ ~~suppliers~~ ~~and~~ ~~international~~ ~~suppliers~~

5. ~~Procurement~~ ~~of~~ ~~medical~~ ~~supplies~~ ~~and~~ ~~other~~ ~~logistics~~
~~from~~ ~~local~~ ~~suppliers~~ ~~and~~ ~~international~~ ~~suppliers~~

6. ~~Contract~~ ~~for~~ ~~funding~~

7. ~~Contract~~ ~~for~~ ~~contract~~ ~~and~~ ~~funding~~

8. ~~Contract~~ ~~for~~ ~~contract~~ ~~and~~ ~~funding~~

9. ~~Klaus~~ ~~for~~ ~~contract~~ ~~and~~ ~~contract~~
~~with~~ ~~Dulwich~~
~~with~~ ~~Uganda~~
~~with~~ ~~Hospital~~
~~Refinery~~

240. 3 Adm. 1-2

مکالمہ

نیوجرسی ایالتی کالج میلبریو

1. 5/14/86 signed contract : funding will available next Tuesday
2. " expect pictures - training Tuesday but only if he has the authority to make and accept them.
3. Exp because again I can't do nothing on his behalf without talk directly to Justice Dept. He does not want me to do this if I have met up with Zeta. The Department concerned informed him they want to bring the Hawk system - designated as M200 238 including training and support which can be furnished if there can be legally added to PRC. Also want him to read spec for fire fighting and military functions from Turkey.
4. Bob has helped him agree to take over liability on engine. I will advise my lawyer to proceed. We'll definite funds now and send necessary to DCS. In fact we'll begin cost at 232 or 233
5. John says he's going to bring division (10) officers entanglement for work and accept pictures
6. DCS will be meeting next week to inform him about his contract agreement regarding liability. He will be advised that work to be carried out by him and company must be done to support the engine. He agrees to do all work except those 2 men he will hire 214 hours first & 2000 hours 2 men and go on as he sees fit. Have him take care of expenses for transportation to Turkey.
7. To be signed Tuesday - probably - he is in against himself evidence to John. Parker denied his claim. Parker
8. Much of India are staying 2000 hours for service duration of 105 months longer than one of his wives
9. 16 C site #3 man messaged and informed Mr. Lewis ARDC funds available
10. C 86
1. Other cost of a life at factoring \$16.50. Another \$10000 for insurance to accompany the Hawk system when delivered to Turkey. This is being discussed with the Hawk system manufacturer.
2. John has been assigned to lead the team which will be involved in this project.

Letter.

1. Address —
Brig. history of Singapore
the large etc

St. Ann Road is a division
of other Banks office land.
why not first start toward normalization
of relations?

1. To what extent will you allow P.R.C. to interfere in internal affairs?
2. What will be no longer active in 24 hours will roll over into next day? Is there any provision for provisional contractors?
3. Who will close down national socialist Chinese?
4. To future contract with national members, please tell.
5. Will North Beatty be able to carry out plan?
6. Will contacts continue? In theory do a extensive diplomatic campaign with each commerce. If you do threats.
7. To what extent can we control Taiwan? How far is it from us to get rid of?
8. Brandon & Tissell. If we do not go to them because
9. We do not want to do this.

12/13/84

Not up on Kastrik and Mr. Black
They prefer that I work through Mr. Mann and
do direct contact would not be convenient.
Mann can supply general catalog and give
price information. Price will vary depending upon
Country purchasing and quantity.

They can arrange the necessary visa if you
wish to come to Europe to help the
discussions there. Alternatively, they are willing
to meet anywhere in W. Europe.

They can supply the free range of Carl
equipment from infants to adult. Would
prefer to start with smaller equipment such as
rings, amputation etc. for the first few
transactions in order to build a good working
relationship before moving on to A/C. They do
specialize in the buying and selling of A/C
and A/C related items.

Payment programs should be thought hard
currency \$/C from prior West European Bank
Follow up of Mann.

there is no art. industry. What we have done is necessity.
we have no finished. If we had no work in us you
would then. Any open contract would be treated.

single reflected reward. Always policies for business
not = ch. patented for U.S.

Stay away from like activities. Stay far away if
not but don't forget who authorized it was. It's
your a real problem if we do not succeed in our
with

it give some notice not my problem. They will not
be on

ANTI-TRUST AFFIDAVIT

STATE OF ARIZONA

COUNTY OF MARICOPA

Before me, the undersigned authority, on this day personally appeared Robert D. Dunham.

President, Wells Fargo Credit Corp., who being by me duly sworn, deposes and says:

That the WELLS FARGO CREDIT CORPORATION is not a trust or organization in restraint of trade, in violation of the laws of Texas; that it has not, within twelve months next preceding the date of this affidavit, entered into any combination, contract, obligation or agreement to create, nor which may tend to create or to carry out any restriction in trade or commerce commodity, or any article of commerce; nor to fix, maintain, increase or reduce the price of any merchandise, produce or ing, transportation, sale or purchase of any merchandise, or any article of manufacture, make- mero, or in the preparation thereof for market; nor to fix or maintain any standard or figure whereby the price of same is or has been in any manner affected, controlled or established. That it has not, during said time, entered into, executed or carried out any contract, obligation or agreement with any person, corporation or association or persons not to sell or dispose of any commodity or articles of commerce below a common standard or figure, or to keep the price thereof at a fixed or graded figures, or to pre- clude a fair and unrestricted competition in the sale of any commodity or articles of commerce, or to regulate, fix or limit the output thereof, or to abstain from engaging in or continuing business or from the purchase or sale of any commodity or article of commerce partially or entirely within the State of Texas or any portion thereof.

Affiant further says that the above named corporation has not within twelve months next preceding the date of this affidavit, either directly or through the instrumentality of trustees or otherwise, acquired the shares or certificates of stocks or bonds, franchises or other rights or the physical properties or any part thereof of any other corporation or corporations for the purpose of preventing or leasing or which tends to affect or lessen competition. That it has not within said time entered into any agreements or any commodities or articles of commerce, nor entered into any agreement to boycott or threaten to re- fuse to buy from or sell to any other person, corporation, firm or association of persons or selling to any other person, firm, corporation or association of persons for the buying from

Affiant further says that no officer of the above named corporation has, within his knowledge, during the said twelve months, made on behalf of it or for its benefits, any such contract or agreement as is specified in this affidavit.

Sworn to and subscribed before me, this 19th day of February, A.D., 1981.



(SEAL)

Notary Public in and for State of Arizona

County of Maricopa

My Commission Expires May 19, 1984

NOTE—The above affidavit must be subscribed and sworn to by the president or vice-president or secretary or treasurer or two of the directors of the corporation applying for permit.

10. The names and respective addresses of its officers are:

NAME	OFFICE	ADDRESS
<u>SEE ATTACHED LIST</u>		

11. The aggregate number of shares which it has authority to issue, itemized by classes, par value of shares, shares without par value, and series, if any, within a class, is:

NUMBER OF SHARES	CLASS	SERIES	PAR VALUE PER SHARE OR STATEMENT THAT SHARES ARE WITHOUT PAR VALUE
25,000	Common	-----	No par value

12. The aggregate number of its issued shares, itemized by classes, par value of shares, shares without par value, and series, if any, within a class, is:

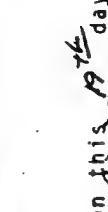
NUMBER OF SHARES	CLASS	SERIES	PAR VALUE PER SHARE OR STATEMENT THAT SHARES ARE WITHOUT PAR VALUE
9,000	Common	-----	No par value

13. The amount of its stated capital is \$ 900,000.
(See Texas Business Corporation Act, Article 1.02A(11) for definition of stated capital).

14. Consideration of the value of at least One Thousand Dollars (\$1,000.00) has been paid for the issuance of its shares.

15. This Application is accompanied by a copy of its articles of incorporation and all amendments thereto, duly authenticated by the proper officer of the state or country under the laws of which it is incorporated.

WELLS FARGO CREDIT CORPORATION

By 
Its  president
and 
Its Assistant Secretary

STATE OF ARIZONA

COUNTY OF MARICOPA

I, the undersigned, a notary public, do certify that on this 19th day of February, 1981, personally appeared before me K.W. Hultman, who being duly sworn, declared that he signed the foregoing document and that the statements therein contained are true.


Notary Public

(Notarial Seal)

My Commission Expires May 19, 1984

NOV 20 1986 *flc*
CLERK OF THE SUPERIOR COURT
MASON COUNTY, WASH.

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4 SUPERIOR COURT OF WASHINGTON FOR MASON COUNTY

5 IN RE THE MARRIAGE OF)

6 STEVEN W. PETERSON,)

7 Petitioner,) NO. 85-3-00109-2

8 and) CERTIFIED STATEMENT OF

9 ROBERTA L. PETERSON,) T. A. BURNS, M.D.

10 Respondent.)

11)

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CERTIFIED STATEMENT OF T.A. BURNS, M.D.

TONI A. SHELDON
ATTORNEY AT LAW
P. O. BOX 727
SHELTON, WASHINGTON 98584
(206) 426-7425

W015

RECEIVED

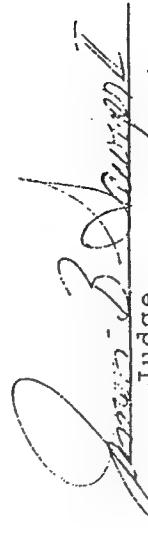
SUPERIOR COURT OF WASHINGTON FOR MASON COUNTY
APRIL 13 1987
In re the marriage of)
ROBERTA L. PETERSON,)
STEVEN W. PETERSON,)

Petitioner,) NO: 85-3-00109-2
and) ORDER ON RESPONDENT'S MOTION
ROBERTA L. PETERSON,) TO SET ASIDE COURT'S ORDER
STEVEN W. PETERSON,) RE: TEMPORARY CUSTODY
Respondent.)

THIS MATTER, having come on regularly to be heard before the undersigned judge of the above entitled Court upon Respondent's motion to set aside the court's order re temporary custody on the grounds that respondent's attorney had not been given notice of its presentation, and the court being duly advised, now, therefore, it is hereby

ORDERED, ADJUDGED AND DECREED, that said order, entered on Feb. 13, 1987 be and is hereby set aside.

DONE IN OPEN COURT this 13th day of April, 1987.


James B. Thompson
Judge

Presented by:


Alan James Sarr
Attorney for Respondent

Copy received:

January 14, 1987

85-3-109-2

To Whom It May Concern:

Bobbie Peterson, who has been under my care for her pregnancy, is unable at this time to deal with the stress of a court appearance.

There are complications in this pregnancy: history of phlebitis, potential premature delivery, and premature contractions.

The emotional and physical strain of a court appearance will be detrimental to her health and the health of her baby.

Until such time as she has fully recovered from the delivery of this baby, court appearance is contraindicated.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing statement is true and correct to the best of my knowledge.

T. A. Burns, M.D.

T. A. BURNS, M.D.

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THEODORE A. BURNS, M.D., COG, FAC
OBSTETRICS AND GYNECOLOGY
2625 WHEATON WAY, SUITE B
BREMERTON, WASHINGTON 98310
Office Phone 479-1811 - Home Phone 692-7636

PATIENT INSTRUCTIONS

NOVEMBER 19, 1986

To Whom It May Concern;

Bobbie Peterson, who is under my care for her pregnancy, can not deal with the stress of a court appearance at this time.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing statement is true and correct to the best of my knowledge.

11-19-86

T.A. Burns, M.D.

T.A. Burns, M.D.

FAX COPY

Please deliver to JANE FITZPATRICK

From CHARLES R. "BOB" LEE

Number pages including cover page FIVE (5)

If all pages are not received please call 509-926-2763

Message As per our telephone conversation

Bob Lee

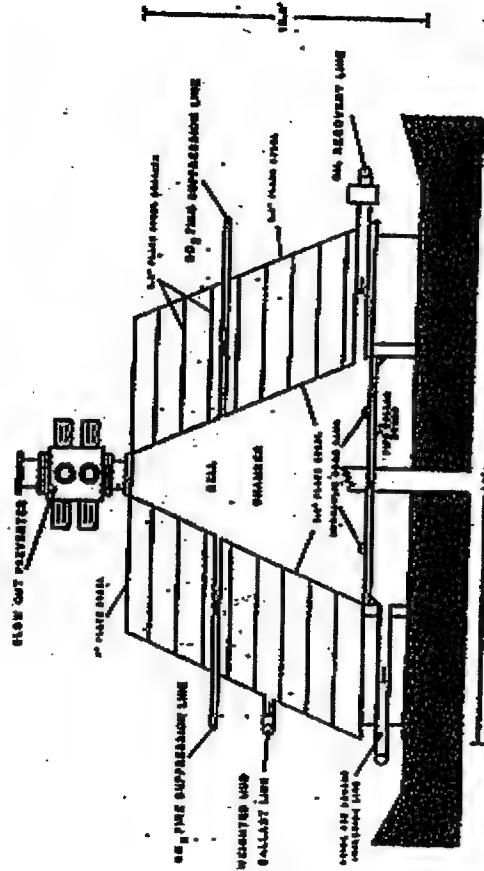
Bob Willis (Mr. Pittaway's
Nearest bank (Brother)
Montana State Legislator
Billings, Montana.

FIRE BELL SYSTEMS, LTD.

33 NORTH LASALLE STREET • SUITE 2800 • CHICAGO, ILLINOIS 60602
Telephone: 312-372-1234 • 309-926-7783 • 406-549-4305 • 933-420-2709 • 713-932-9777

FIRE BELL

WELL FIRE EXTINGUISHING AND OIL RECOVERY SYSTEM



The Fire Bell is designed to rapidly extinguish oil well fires by eliminating the flow of air to the oil well. The Fire Bell has been designed to quickly and safely put out any size oil well fire under extremely difficult conditions - without the use of water.

After the oil well fire is extinguished, the design of the Fire Bell allows the fire fighting team several options. If desired, a flowing oil well can be put into production by connecting valves on the Fire Bell to existing oil pipe lines. As long as the oil well flows, the Fire Bell can act as a well head for an indefinite period of time.

If conditions warrant, weighted muds or fluids can be injected into the Fire Bell creating a "Bullhead" to neutralize the well pressures. After the well pressures are neutralized, the Fire Bell can be removed from the well head and reused. The surface equipment can then be replaced or repaired and the oil well put back into production.

A final option offered by the Fire Bell is that after the oil well fire is extinguished, the drill hole can be re-entered and repaired by a conventional drill rig at any time. This option allows a drill rig to set up over the Fire Bell and enter the bell through the Blow Out Preventer that is located on the top of the Fire Bell. This option allows fire fighters to quickly extinguish a great number of oil well fires leaving final well head repairs to well head repair specialists.

FIRE BELL OIL WELL FIRE EXTINGUISHING AND OIL RECOVERY SYSTEM

The Fire Bell system is remarkably simple. The basic premise of the Fire Bell system is that if an oil well fire has no oxygen, there will be no fire. The Fire Bell has been designed to exploit this premise while providing maximum safety for fire fighters.

Fire Bell Design

The Fire Bell is designed to contain any size oil well fire. The Fire Bell has been designed as an inverted cone which channels oil and gas escaping from the damaged well head upward and out of the Fire Bell.

After the Fire Bell has been placed over the well head, oil and gas is funneled out of the top of the Fire Bell through a conventional blow out preventer. When the Fire Bell is placed over the damaged well head, the blow out preventer is in the open position allowing the release of the oil and gas while keeping pressures in the bell at a minimum.

The sides of the Fire Bell are a double-walled chamber that can be filled with water or weighted muds. For larger oil well fires with high pressures, conventional weighted drilling muds can be used in the Fire Bell to hold the Bell in place. The fluid in the double-walled chamber can also act as a cooling agent while the Fire Bell is being positioned over the fire.

Oil and Gas Containment

After the Fire Bell is centered over the projecting pipe, the bottom Fire Bell doors are hydraulically closed and sealed around the pipe. If extreme pressures are encountered, quick-setting cement can be injected into the 18 inch subfloor between the doors and the ground surface as a safety factor.

After the oil well fire is extinguished, the fire fighter has three options with the Fire Bell. 1) Put the well back into production by connecting the Fire Bell to a pipeline, 2) "Kill" the oil well by injecting weighted muds into the Fire Bell and subsequently into the oil well, Or, 3) Leave the extinguished oil well to be repaired by a drill rig that can re-enter the Fire Bell through the blow out preventer located on the top of the Fire Bell.

FIRE BELL SYSTEM INSTALLATION

Site Preparation

Installation of the Fire Bell System requires minor site preparation around the damaged well head. Fences, pipes and other debris found around the well head for approximately 20 feet must be removed and the ground leveled to the extent possible. Site preparation provides a prepared surface on which to set the Fire Bell. If the well casing is less than 24 inches above the ground the area around the well head will have to be excavated with a drag line.

Fire Bell Preparation

Depending on the size of the oil well fire and the pressures involved, a ballast and cooling fluid of water or weighted mud is selected and pumped into the Fire Bell's double walled chamber.

Hydraulic lines are connected to the Fire Bell. Hydraulic lines operate the blow out preventer located at the top of the Fire Bell, the Bell doors, and other valves that are connected to pipes entering the pressure chamber.

If required, the Fire Bell is constructed to allow CO₂ to be injected into the Fire Bell chamber to provide additional fire suppression capability. If needed, the CO₂ lines must be attached at the same time as the hydraulic lines.

Fire Bell Emplacement

A large, truck-mounted crane will be used to place the Fire Bell over the oil well fire. Two dozers with winches will be used to assist the crane with the Fire Bell emplacement. The dozers winch lines will stabilize the Fire Bell over the oil well fire and assist in centering the Fire Bell over the well head. Preliminary contacts with contractors in Saudi Arabia have located several truck-mounted cranes that are capable of the lift capacities needed to place the Fire Bell over the well head.

FIRE BELL EXTINGUISHING SYSTEM

Once the Fire Bell is in place, the hydraulic pipe collar doors will be closed. If necessary, quick setting cement can be injected into the Fire Bell's sub-floor to prevent any oil and gas pressure loss from beneath the Fire Bell.

After the cement has had an adequate opportunity to set in the Fire Bell's sub-floor, the blow out preventer on the top of the Fire Bell is hydraulically closed. Once the blow out preventer is closed, the oil well fire is extinguished and the well oil and gas is contained within the Fire Bell.

Once the Fire Bell has extinguished and contained the oil well fire, one of several options can be undertaken. Oil production from a flowing well can begin immediately by opening production valves in the Fire Bell, downhole well repairs can be affected by killing the well by injecting weighted muds into valves in the Fire Bell, or, the well can be repaired by a drill rig that re-enters the well through the blow out preventer located on the top of the Fire Bell.

FIRE BELL MATERIALS AND CONSTRUCTION

The Fire Bell is constructed from readily available materials. All Fire Bell parts and materials are off-the-shelf items that do not require any specialized manufacturing. The Fire Bell has been designed to use existing parts so that production costs and construction lead time can be kept to a minimum.

The materials necessary to construct the Fire Bell include plate steel, standard valves and fittings, a blow out preventer, API piping and hydraulic rams. The equipment necessary to construct the Fire Bell include arc welders, cutting torches and small cranes.

The most efficient way to construct the Fire Bell is to assemble the majority of the Fire Bell in a major city that is near the well fire(s) where the Fire Bell is to be used. It is preferable that the city where the Fire Bell is to be constructed be a major port or have a large airport so that construction materials can be easily delivered. Final assembly of all aspects of the Fire Bell will occur at the well fire site.

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*An Army tactical application

E & M TRANSFER

There is a simple group of processes, transport processes, in which some physical quantity such as mass or energy or momentum or electrical charge is transported from one region of a system to another. Consider a metal bar connecting two heat reservoirs at different temperatures. Heat flows through the bar from the high temperature reservoir to the low temperature reservoir; the heat flow is the manifestation of the transport of energy through the bar. The energy flow is easily measurable. Another example is the transport of electrical charge through a conductor by the application of an electrical potential difference between the ends of the conductor. Mass is transported in a flow of fluid through a pipe resulting from a pressure difference between the ends of the pipe. Diffusion is the mass transport which occurs in a mixture if a concentration gradient is present. The phenomenon of viscosity, the resistance to flow exhibited by fluids, results from the transport of momentum in a direction perpendicular to the direction of flow.

In all cases the flow, the amount of physical quantity transported in unit time through a unit of area perpendicular to the direction of flow, is proportional to the gradient of some other physical property such as temperature, pressure, or electrical potential. Choosing the z-axis as the direction of flow, the general law for transport is:

$$J_z = -B \frac{\partial y}{\partial z} \quad \text{eq 1}$$

J_z = flow (amount of the quantity transported per cm^2 per sec.)

$-B$ = proportionality constant

$\frac{\partial y}{\partial z}$ = gradient of y in the direction of flow

y = quantity i.e., temperature, electrical potential, pressure, etc.

Since flow occurs in a particular direction, it is a vector quantity; equation 1 describes the z-component of the vector.

From the general form of equation 1 we have the following examples in the z direction

$$\text{Heat flow (Fourier's law)} \quad J_z = K_T \frac{\partial T}{\partial z} \quad \text{Eq. 2}$$

$$\text{Electric current flow (Ohm's law)} \quad J_z = -K \frac{\partial V}{\partial z} \quad \text{Eq. 3}$$

$$\text{Fluid flow (Poiseuille's law)} \quad J_z = -C \frac{\partial P}{\partial z} \quad \text{Eq. 4}$$

$$\text{Diffusion (Ficks law)} \quad J_z = -D \frac{\partial C}{\partial z} \quad \text{Eq. 5}$$

K_T = Coefficient of thermal conductivity

K = Coefficient of electrical conductivity

C = Coefficient of friction related to viscosity

D = Coefficient of diffusion

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